## ABSTRACT

**AIM:**

To evaluate the efficacy of three different irrigation methods in removal of Triple antibiotic paste.

1. Syringe irrigation with normal saline
2. Syringe irrigation with sodium hypochlorite
3. Passive ultrasonic irrigation with sodium hypochlorite.

**MATERIALS AND METHODS**

Sixty extracted single rooted maxillary central incisors with mature apices were selected, cleaned and decoronated to a standard root length of 18mm. The working length was established 1mm short of the root length. The root canals were prepared using Protaper universal rotary files with F4 being the master apical file. Irrigation was done with 2ml of 2.5% sodium hypochlorite after each instrumentation and a final flush of 2ml of 17% ethylene diamine tetracetic acid was used. The canals were dried with paper points. The roots were fixed in eppendorf vials with silicone material. Triple antibiotic paste was prepared by using commercially available tablets which were pulverised using motor and pestle. The powder was then mixed with propylene glycol in the ratio 3:1 to obtain a paste form. The paste was then applied into the root canals using lentulo spirals until excess was visible at the apex. A cotton pellet was placed at the access and the root canal temporarily closed with cavit. The samples were stored in incubator at 37°C and 100% humidity for 7 days.

The samples were then randomly allocated to three groups having 20 samples each. In group I, irrigation was performed with 30G side vented needle with 10ml of normal saline for 1min. In group II, irrigation was performed with 30G side vented needle with 10ml of 3% sodium hypochlorite for 1 min. In group III, irrigation was performed with 10ml of 3% sodium

hypochlorite continuously delivered into the root canal and the solution was agitated using ultrasonic file inserted 1mm short of the working length for 1min at a power setting of 6.

The samples were sectioned longitudinally using diamond disc and 40 samples were obtained for each group. All the samples were observed under stereomicroscope of magnification 25x for the remaining triple antibiotic paste present in the canal. The images of the root canal sections were obtained by using digital camera connected to the microscope. The digital images were evaluated using Digimizer image analysis software. The amount of triple antibiotic paste remaining in the root canal was measured in $mm^2$ and was recorded as percentage of overall surface area of the canal. A scoring system as proposed by Aksel et al was used to score the remaining TAP in the canals : Score 1 – less than 25% of the root canal filled with TAP, Score 2 – 25-50% of the root canal filled with TAP, Score 3 – 50-75% of the root canal filled with TAP, Score 4 – 75-100% of the root canal filled with TAP. The results obtained were statistically evaluated.

**RESULTS**

The results show that there is significant difference among the groups in terms of removal of TAP from the root canal($p<0.001$). Group III had the least percentage of remaining TAP in the root canal with a mean percentage of 26.4 followed by group II with a mean percentage of 30.4 and group I with a mean percentage of 41.6.

Pairwise comparison was made among the groups which showed that there was significant difference between group III and group I whereas there was no significant difference between group I and group II and group II and group III respectively.

**CONCLUSION**

Within the limitations of this study it could be concluded that none of the proposed irrigation methods removed TAP completely from the root canal. However 3% Sodium hypochlorite with passive ultrasonic irrigation resulted in better removal.

**KEYWORDS**

Intracanal medicament, Irrigation, Passive Ultrasonic Irrigation, Triple Antibiotic Paste.